Superfund Program
Proposed Plan

EPA Region II

Scientific Chemical Processing Site
Carlstadt, New Jersey

May, 1990

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the preferred option for reducing the migration of contamination from the Scientific Chemical Processing Site (SCP Site). This document is issued by the United States Environmental Protection Agency (EPA), the lead agency for site activities, and the New Jersey Department of Environmental Protection (NJDEP), the support agency for this response action. EPA, in consultation with NJDEP, will select an interim remedy for the site only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation and Feasibility Study (RI/FS) reports and other documents contained in the administrative record file for this site. EPA and NJDEP encourage the public to review these other documents in order to gain a more comprehensive understanding of the site and Superfund activities that have been conducted there. The administrative record file contains the information upon which the selection of the response action will be based. The file is available at the following locations:

William E. Dermody Free Public Library
420 Hackensack Street
Carlstadt, New Jersey
(201) 438-8866

Hours: M-Th: 10:00am-5:30pm, 7:00-9:00pm
Fri: 10:00am-5:30pm, Sat: 10:00am-1:00pm

and

U.S. EPA Region II
Emergency & Remedial Response
Division File Room
26 Federal Plaza 29th Floor
New York, NY 10278

Hours: M-F: 9:00am-5:00pm

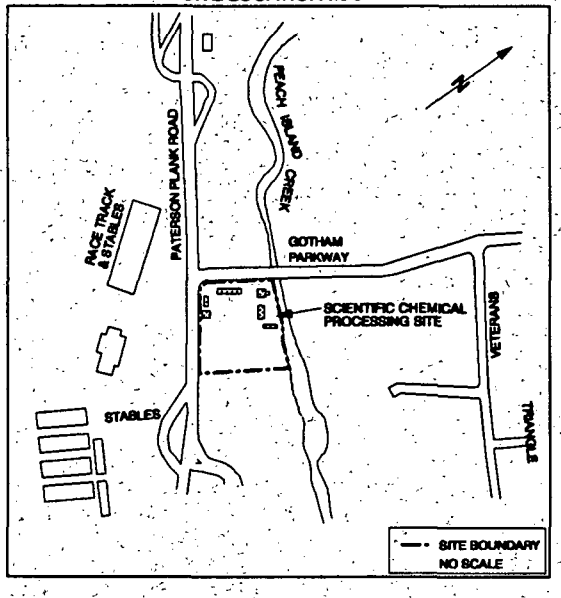
EPA, in consultation with the NJDEP may modify the preferred alternative or select another response action presented in this Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

DATES TO REMEMBER
MARK YOUR CALENDAR

May 19 - June 18, 1990
Public Comment period on interim remedy to reduce migration of contaminants

June 5, 1990
Public meeting at Carlstadt Borough Hall

SITE LOCATION MAP



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SITE BACKGROUND

The SCP Site is located at 216 Paterson Plank Road in Carlstadt, New Jersey. The site, which is owned by Inmar Associates, was used during the 1970s by the Scientific Chemical Processing, Inc. for treatment of a wide variety of industrial chemical wastes. In 1980, operations at the facility were ceased. The site was placed on the National Priorities List in 1983. Between 1983 and 1985, NJDEP required the site owner to remove approximately 250,000 gallons of wastes stored in tanks, which had been abandoned at the site. In April 1985, EPA assumed the lead role in response actions, and contacted approximately 140 Potentially Responsible Parties (PRPs) to offer them the opportunity to undertake an RI/FS at the site. In the fall of 1985, EPA issued Administrative Orders to these parties, requiring them to undertake these studies under EPA oversight. At that time, EPA also issued an Administrative Order to the site owner, Inmar Associates, requiring the company to remove and properly dispose of the contents of five tanks containing wastes contaminated with Polychlorinated Biphenyls (PCBs) and numerous other hazardous substances.

Inmar completed the tank removal in late 1986, and the PRPs initiated the RI/FS in April 1987. The RI/FS was conducted to identify the nature and extent of contamination at the SCP site, and to develop remedial alternatives to address the contamination. The results of the investigation indicated that hazardous substances are present in site soils and groundwater. These substances are migrating from the soils and groundwater in the shallow zone of the SCP site into the underlying groundwater aquifers, as well as into Peach Island Creek, a tidal waterway adjoining the site.

The detailed results of the RI can be found in the Remedial Investigation Report, contained in the administrative record file noted above. The results of the investigation can be summarized as follows:

-the geology of the site is comprised of the following units, in descending order- the shallow aquifer (which occurs approximately 2 feet below the ground surface), a clay layer (which occurs approximately 12 feet below the ground surface), a till aquifer, and a deeper bedrock aquifer;

- on-site soils, both at the surface and down to a depth of at least 10-12 feet, are heavily contaminated with hazardous substances, including volatile organics (total concentration as high as 12,167 parts per million (ppm)), base/neutral compounds (as high as 3,913 ppm), PCBs (as high as 15,000 ppm), petroleum hydrocarbons (as high as 81,600 ppm), as well as acid extractable compounds, phenolics, cyanide, pesticides, and inorganic compounds at similarly high concentrations.

- the shallow groundwater at the site is heavily contaminated with hazardous substances, including volatile organics (as high as 2,564 ppm), base/neutral compounds (as high as 68 ppm), acid extractable compounds (as high as 17 ppm), PCBs (as high as 17 ppm), petroleum hydrocarbons (as high as 2,270 ppm), as well as pesticides and inorganic compounds;

- contaminants have migrated from the shallow zone down into and through the clay layer which separates the shallow aquifer and the deeper aquifers;

- deeper groundwater at the site is contaminated with volatile organics and and semi-volatile organic compounds; and

- surface water and sediment in Peach Island Creek, a tributary of Berry's Creek which flows adjacent to the site, is contaminated with hazardous substances which were found in the soils and groundwater at the site.

The PRPs also conducted an FS to evaluate potential remedial alternatives for the most heavily contaminated zone at the site, (contaminated soils, sludges and shallow groundwater down to, but not including the clay layer). Various technologies for

treating the most heavily contaminated zone were evaluated, including, solidification of the soils/sludges, chemical extraction of contaminants from the soils/sludges, and incineration of the soils/sludges. In addition, the FS evaluated the No Action Alternative.

The FS demonstrated that in order to treat the heavily contaminated saturated soil, it would first be necessary to remove the shallow groundwater from this zone. Consequently, each of the alternatives evaluated (with the exception of the No Action Alternative) includes implementation of a "dewatering" system. This system consists of:

1) installation of an underground slurry wall around the site perimeter, down to the clay layer;

2) extraction of groundwater from within the boundary of this wall; and,

3) subsequent treatment and disposal of the groundwater.

After dewatering, it could then be possible to treat the contaminated soils, either by excavation or treatment in place ("in-situ").

As described above, during the FS, treatability studies were performed to test the effectiveness of several treatment methods for soils and groundwater. The results of the studies indicate that, although there are several treatment methods which are potentially viable for remediation of soils and sludges, there are uncertainties regarding the relative effectiveness of various remediation technologies. Due to the high concentrations and wide variety of chemicals present in the soil and sludge, it is unknown whether any one technology will be adequate to remediate the soils and sludges. Consequently, additional data must be gathered in order to select a permanent remedy for the shallow zone which is protective of human health and the environment.

SCOPE AND ROLE OF PROPOSED RESPONSE ACTION

Though further work is planned to evaluate treatment technologies for the soils and sludges, EPA is proposing an interim action to temporarily reduce migration of contaminants from the shallow zone until further studies of the site are completed. This proposed interim action consists of site dewatering through installation of a slurry wall, collection of groundwater, and off-site treatment and disposal.

The SCP site, as characterized by the RI field investigations, is extremely complex, due the wide variety of contaminants present, the high concentrations of contaminants detected, and the many potential migration routes for these contaminants.

Consequently, EPA has divided the work at the site into components called "operable units" (OUs). These OUs for the site are defined as follows:

OU 1: the shallow zone of the site, including contaminated soils and groundwater above the clay layer; and,

OU 2: the deeper zone of the site and potential off-site contamination, including the deeper groundwater aquifers and Peach Island Creek.

The combination of chemical contaminants present within the area comprising OU 1 (including volatile organics, semi-volatile organics, PCBs, metals and petroleum hydrocarbons) poses significant technical issues in terms of treatability of the soils. Further data collection and testing of various potential treatment methods are desireable prior to identification of an effective remedy for this operable unit. It is anticipated that such studies will take approximately 12 months to complete.

Although a permanent remedy for OU 1 cannot be selected at this time, EPA is proposing implementation of a site dewatering system as the first phase of OU 1 in the interim. Since the dewatering system is a common component of all alternatives evaluated to date, (with the exception of the No Action Alternative), it will be consistent with any potential future remedy which EPA will select for the site. This alternative will be part of a future permanent remedy which will protect human health and the environment. Although this alternative is not fully protective in and of itself, it is expected to be effective in temporarily reducing further migration of contaminants from the shallow zone until a permanent remedy can be implemented.

SUMMARY OF SITE RISKS

An analysis was conducted by EPA through its contractor during the RI/FS to estimate the health and environmental impacts that could potentially result from the contamination at the SCP site. This analysis is commonly referred to as a baseline risk assessment.

The data collected as part of the RI revealed that at least 87 chemicals exist in the soil and shallow groundwater at the site. The highest concentrations of chemicals are found in the soils, sludge and/or groundwater above the clay lens at the site.

Many of the chemicals detected in the soils and groundwater are known carcinogens in animals and are suspected human carcinogens (e.g. PCBs, chloroform, 1,2-dichloroethane, methylene chloride.) Other chemicals detected at the site are known human carcinogens (e.g. vinyl chloride, arsenic, and benzene).

Many of the hazardous substances detected in the groundwater at the site were present at levels which far exceed Federal and State standards and guidelines for groundwater. In particular, the levels of numerous volatile organic compounds, PCBs, and several inorganics exceed the Federal Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act, and the New Jersey MCLs by orders of magnitude.

As evidenced by the data collected to date, there has been migration of contaminants from the shallow zone to deeper groundwater and Peach Island Creek, and there is a potential for continued migration absent the implementation of interim remedial action. Contamination released from the site may also pose risks to aquatic life and endangered species, such as the Pied-billed Grebe, through exposure to Peach Island Creek sediments and surface water.

SUMMARY OF ALTERNATIVES

Many alternatives for remediation of the first operable unit were evaluated in the FS, which is available in the information repositories noted above. However, because EPA is proposing an interim action for OU 1, only limited interim action alternatives are presented here. The three alternatives analyzed for the interim action to control migration are presented below. Following implementation of any of the alternatives, monitoring would be conducted until the permanent remedy for OU 1 is implemented. For costing purposes, it was assumed that quarterly monitoring would be conducted for three years.

Alternative 1: No Further Action

Capital Cost:	$ 0
Annual Operation and Maintenance (O & M) Costs:	$ 40,000
Present Worth (PW)	$ 109,000
Months to Design and Construct	0

Superfund regulations require that the No Action alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, EPA would take no interim action at the site to reduce migration of contaminants to groundwater and Peach Island Creek, but would continue to maintain the existing fence around the site property to restrict access to the site. The No Further Action alternative also includes periodic monitoring of groundwater.

Alternative 2: Site Dewatering through installation of a Slurry Wall, Groundwater Collection and Treatment System

Capital Cost:	$ 4,586,000
Annual O & M cost	$ 109,000 (for 3 years)
Present Worth, (including 10% contingency)	$ 5,164,000

Months to Design and Construct: 12-24

Major features of this alternative include: installation of an underground slurry wall around the perimeter of the site, installation of a groundwater collection system within the boundary of the slurry wall, and construction of groundwater treatment plant to treat collected groundwater prior to discharge of the treated effluent to Peach Island Creek. The treatment plant would be designed to meet NJPDES requirements for discharge of treated groundwater to Peach Island Creek. (See preliminary discharge standards, provided to EPA by NJDEP by letter dated April 16, 1990, contained in the administrative record file for this site.)

In addition, an infiltration control barrier would be placed over the site. The function of this temporary barrier would be solely to prevent the infiltration of rainwater, limiting the volume of water requiring treatment, and thus the cost of treatment.

Alternative 3: Site Dewatering through installation of a Slurry Wall, Groundwater Collection and Off-site Treatment and Disposal

Capital Cost:	$ 2,557,000
Annual O & M cost	$ 42,000 (for 3 years)
Present Worth (including 10% contingency)	$ 2,933,000

Months to Design and Construct: 9-15

This alternative is identical to Alternative 2, except that groundwater would be transported and disposed of at a facility capable of accepting the water with no pretreatment at the site. Consequently, construction of an on-site treatment facility would not be necessary.

Both Alternatives 2 and 3 would effectively reduce, but not eliminate, migration of contaminants via groundwater beyond the slurry wall boundary until a permanent remedy is in place.

EVALUATION OF ALTERNATIVES

The preferred alternative is to take interim action at the site by implementing Alternative 3. This alternative is a necessary component of any permanent future remedy for OU 1 (e.g. treatment of the soils/sludges) and would appear to provide the best balance of trade-offs among the alternatives with respect to the criteria that EPA uses to evaluate alternatives. This section profiles the performance of the preferred alternative against the criteria which apply to this interim action, noting how it compares to the other options under consideration.

Overall Protection of Human Health and the Environment: This criterion addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls. Alternative 1 would not be protective of human health and the environment since contaminants would continue to migrate from the soils and shallow aquifer to deeper aquifers and Peach Island Creek. Alternatives 2 and 3 would protect human health and the environment in the short term by reducing further migration of contaminants through the above migration pathways until a final remedy is in place.

Compliance with ARARs: This criterion addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) of Federal and State environmental statutes (other than CERCLA) and/or provide grounds for invoking a waiver.

There are several types of ARARs: action-specific, chemical-specific, and location-specific. Action-specific ARARs are technology or activity-specific requirements or limitations related to various activities. Chemical-specific ARARs are usually numerical values which establish the amount or concentrations of a chemical that may be found in, or discharged to, the ambient environment. Location-specific requirements are restrictions placed on the concentrations of hazardous substances or the conduct of activities solely because they occur in a special location.

CERCLA provides that if an interim measure is conducted, ARARs may be waived, since these requirements will be achieved upon completion of the permanent remedy. Because Alternatives 2 and 3 constitute interim actions, final cleanup levels for soil and groundwater do not have to be achieved, but will be addressed in the final remedy.

However, certain action-specific requirements, discussed below, will be attained as part of implementation of Alternatives 2 or 3.

Actions taken in Alternative 2 will comply with effluent limitations for any discharge from groundwater treatment plant into Peach Island Creek. In addition, the treatment plant will be designed and operated in compliance with Federal and State air emissions requirements. For Alternative 3, requirements pertaining to any off-site disposal facility will have to be met. Both Alternatives 2 and 3 will comply with the Executive Orders on Flood Plain Management, and Wetlands Protection, the Clean Water Act Section 404 General Standards for Permitting Stream Encroachment, and the New Jersey Soil

Erosion and Sediment Control Requirements (N.J.A.C. 4:24-1), and the regulations of the Hackensack Meadowlands Development Commission.

Long-term Effectiveness: This criterion refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. Given that this is an interim action, effectiveness need only be maintained for the duration of the interim action, which is expected to be no more than three years. Therefore this criterion will evaluate long-term effectiveness over a three year period.

Alternative 1 is not effective in the long or short term. Both Alternatives 2 and 3 will be effective in reducing the migration of contaminants from the shallow zone of the site, once implemented, and should maintain their effectiveness for the expected duration of the interim remedial action.

Reduction of Toxicity, Mobility or Volume:

This criterion addresses the degree to which a remedy utilizes treatment to reduce the toxicity, mobility, or volume of contaminants at the site.

Since neither of the Alternatives evaluated for this interim remedy employ treatment of the soils/sludges in the OU 1 zone, this criterion is not applicable to the soil/sludge in the OU 1 zone. Alternatives 2 and 3 do involve the treatment of contaminated groundwater, and should reduce the volume of contaminants in the shallow groundwater.

Short-Term Effectiveness: This criterion refers to the time in which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Alternative 1 presents the least short-term risks to on-site workers since no construction activities are involved in implementing the No Action alternative. However, it will not reduce any of the existing risks at the site. Alternatives 2 and 3 will require the execution of health and safety protection measures during the remedial construction to adequately protect workers. These measures may include requirements for protective clothing and respiratory protection. Health and safety measures to protect the community, such as dust ore vapor suppression, will also be required. However, neither Alternative 2 nor 3 present health and safety problems which cannot be successfully addressed by available construction methods.

The estimated time periods for design of the Alternatives and periods for construction are as follows: Alternative 2 - 9 months for design and 9 months for construction; Alternative 3 - 6 months for design and 6 months for construction. Therefore, Alternative 3 will reduce the migration of contaminants most quickly. However, both Alternatives 2 and 3 will provide benefits in terms of the time required for ultimate remediation of OU 1, since implementation of the dewatering now will expedite implementation of the permanent remedy ultimately selected.

Implementability: Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the selected alternative.

Alternative 1 is the simplest alternative to implement from a technical standpoint since it only involves actions to periodically inspect and sample the site, ensure restricted access to the site, and continue to provide information about the site to the surrounding community.

The operations associated with Alternative 2 (construction of a slurry wall, dewatering system, and groundwater treatment system) generally employ well established, readily available construction methods. However, the placement of a treatment plant on site may pose some difficulties upon implementation of the permanent remedy for the soils, since the plant would need to be moved in order to obtain access to the soils for any future treatment. In addition, the ability of a treatment system to meet the administrative requirements (see below) for discharge to Peach Island Creek, will require further investigation.

The operations associated with Alternative 3 (construction of a slurry wall, dewatering system, and off-site treatment of groundwater) employ well established, readily available construction methods. This alternative would necessitate contingency plans to ensure that adequate storage

capacity exists for collected groundwater, in the event of a significant increase in the estimated flow due to unanticipated infiltration.

Administrative requirements associated with Alternative 2 include compliance with NJPDES requirements for discharge of treated groundwater to Peach Island Creek, or for Alternative 3, disposal of groundwater at an approved off-site facility will require compliance with standards established for the receiving facility. In addition, both alternatives would include periodic monitoring to ensure their effectiveness.

Both alternatives are implementable from an administrative and technical perspective.

Cost: Cost includes capital and operation and maintenance (O & M) costs.

Alternative 1, No Action, has an estimated present worth of $109,000. The primary constituents of this cost are inspection and sampling. The present worth cost estimates of Alternatives 2 and 3 are $5,164,000 and $2,933,000, respectively. The major cost items associated with Alternatives 2 and 3 are construction of the slurry wall and groundwater treatment or disposal.

The cost estimates are based on the assumption that approximately 1,000,000 gallons of groundwater will be treated.

State Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative. This criterion will be addressed when State comments on the Proposed Plan are received.

Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the RI/FS reports and the Proposed Plan.

SUMMARY OF THE PREFERRED ALTERNATIVE

In summary, Alternative 3 would achieve risk reduction in the short term by minimizing further migration of contaminants from the site. Alternative 3 will not conflict with any future remedy which will be selected to address the contaminants remaining at the site. Therefore, Alternative 3 is believed to provide the best balance of tradeoffs with respect to the evaluation criteria and is proposed by EPA as the preferred alternative.

THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

EPA solicits input from the community on the cleanup methods proposed for each Superfund response action. EPA has set a public comment period from May 19 through June 18, 1990 to encourage public participation in the selection of an interim remedy for the SCP Site. The comment period includes a public availability session at which EPA will discuss the RI/FS report and Proposed Plan, answer questions, and accept both oral and written comments.

The public meeting for the SCP Site is scheduled for June 5, 1990 from 7pm until 9pm, and will be held at the Carlstadt Borough Hall, 500 Madison Street, Carlstadt, New Jersey.

Comments will be summarized and responses provided in the Responsiveness Summary section of the Record of Decision (ROD). The ROD is the document that presents EPA's final selection for response action. Written comments on this Proposed Plan should be sent to by close of business June 18, 1990:

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